

TENTATIVE

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN227

INFRARED LED FOR SPACE-OPTICAL-TRANSMISSION

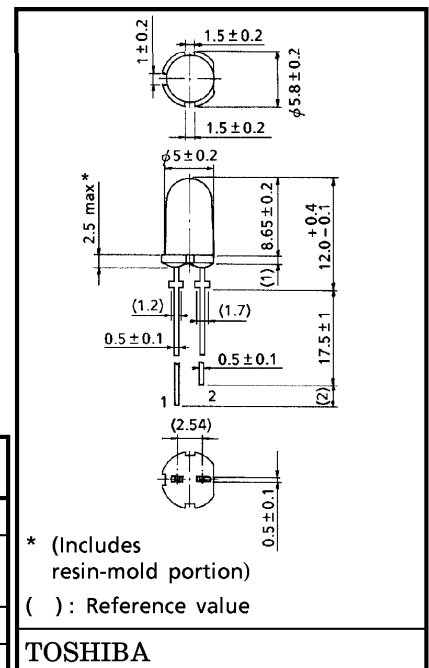
Unit : mm

- High radiant power : $P_o = 18 \text{ mW (typ.)}$ at $I_F = 50 \text{ mA}$
- Wide half-angle value : $\theta_{\frac{1}{2}} = \pm 21^\circ \text{ (typ.)}$
- High-speed response : $t_r, t_f = 30 \text{ ns (typ.)}$
- Light source for remote control
- Designed for transmission of wireless AV signals purpose.
- Designed for high-speed data transmission

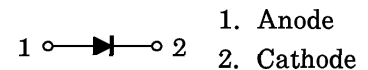
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	100	mA
Pulse Forward Current	I_{FP}	1000 (Note 1)	mA
Power Dissipation	P_D	220	mW
Reverse Voltage	V_R	4	V
Operating temperature	T_{opr}	-25~85	$^\circ\text{C}$
Storage Temperature	T_{stg}	-30~100	$^\circ\text{C}$
Soldering Temperature (5s)	T_{sol}	260	$^\circ\text{C}$

(Note 1) : Frequency = 100 kHz, duty = 1%



PIN CONNECTION



OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

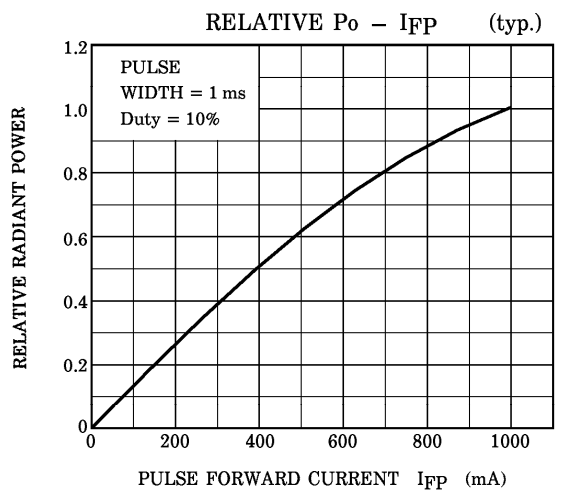
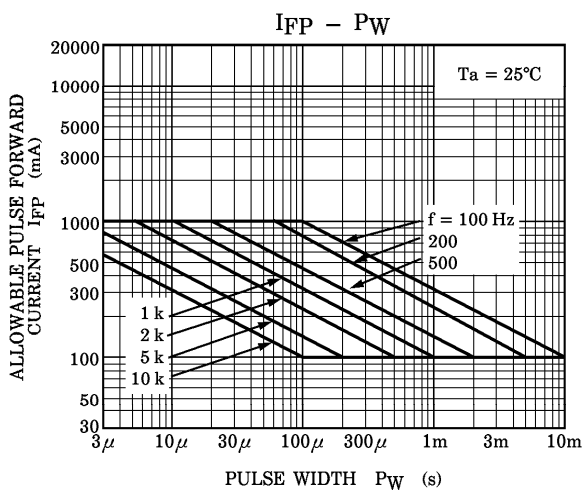
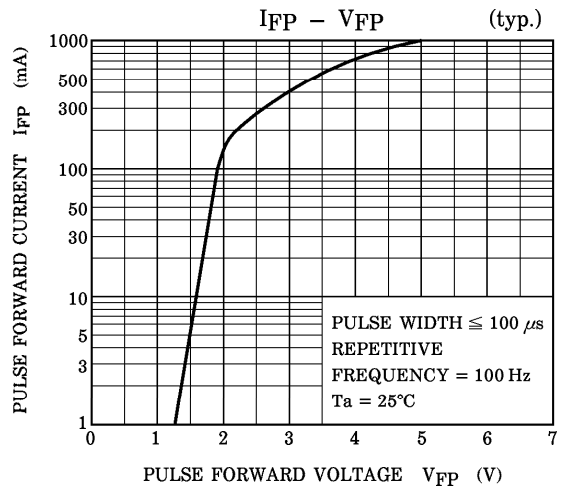
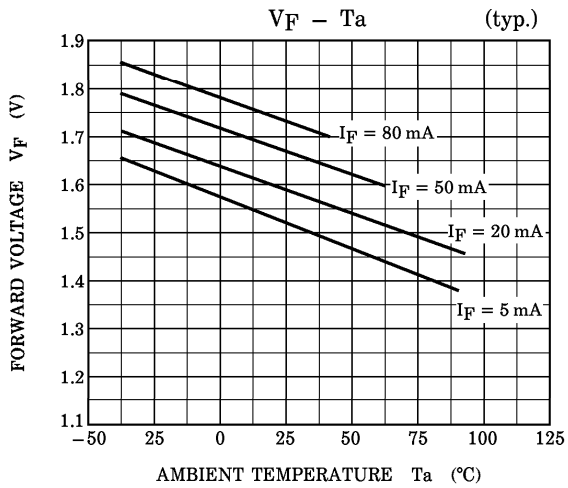
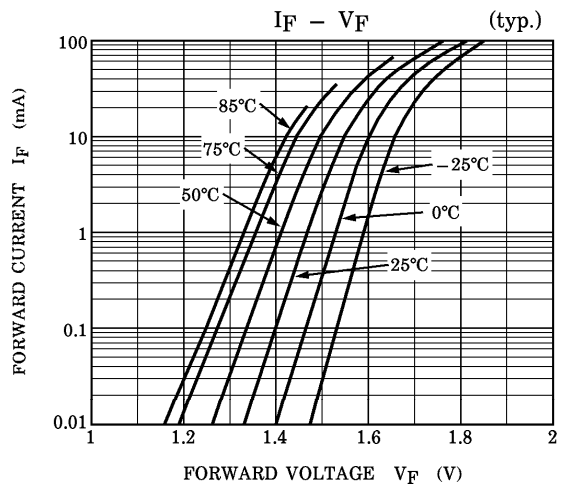
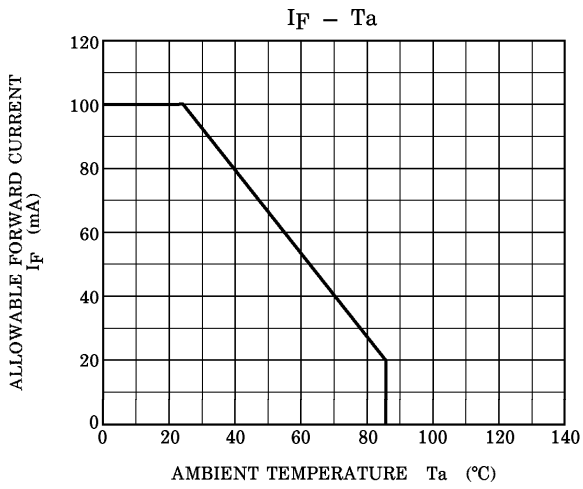
CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT
Forward Voltage	V_F	$I_F = 100 \text{ mA}$	—	1.8	2.2	V
Reverse Current	I_R	$V_R = 4 \text{ V}$	—	—	60	μA
Radiant Power	P_O	$I_F = 50 \text{ mA}$	14	18	—	mW
Radiant Intensity	I_E	$I_F = 50 \text{ mA}$	—	100	—	mW / sr
Rise Time, Fall Time	t_r, t_f	$I_{FP} = 100 \text{ mA}, P_W = 100 \text{ ns}$	—	30	—	ns
Cut-off Frequency (Note : 2)	f_c	$I_F = 50 \text{ mA}_{DC} + 5 \text{ mA}_{P-P}$	10	15	—	MHz
Capacitance	C_T	$V_R = 0, f = 1 \text{ MHz}$	—	110	—	pF
Peak Emission Wavelength	λ_P	$I_F = 50 \text{ mA}$	830	870	900	nm
Spectral Line Half Width	$\Delta\lambda$	$I_F = 50 \text{ mA}$	—	50	—	nm
Half Value Angle	$\theta_{\frac{1}{2}}$	$I_F = 50 \text{ mA}$	—	± 5	—	$^\circ$

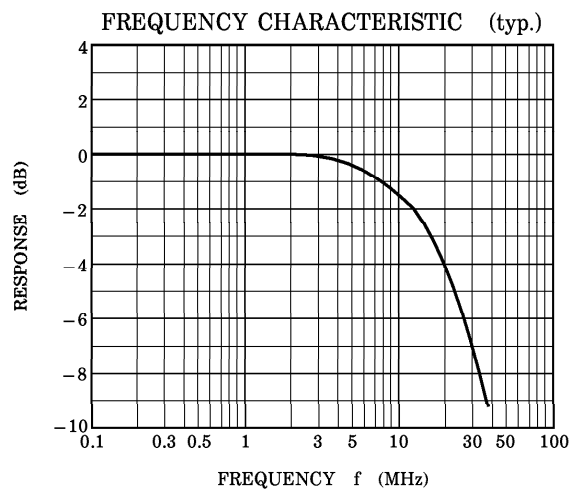
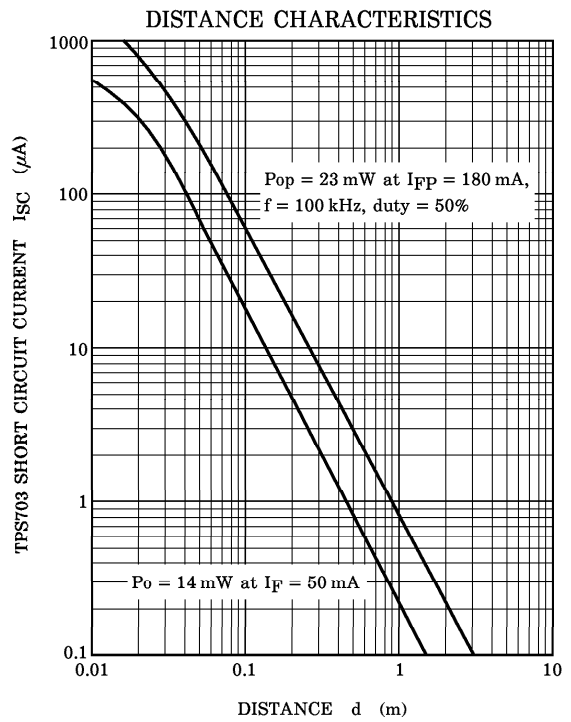
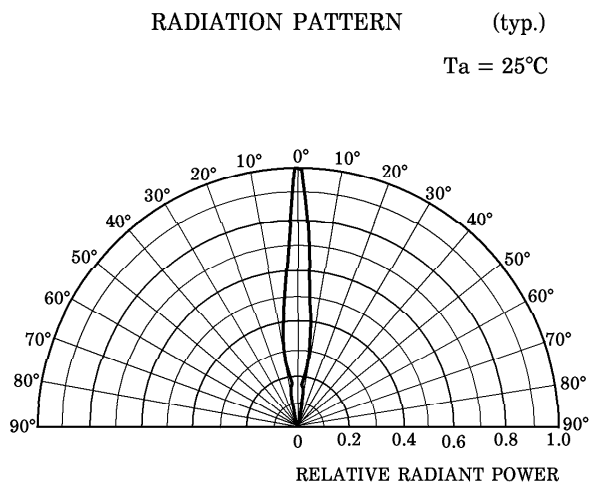
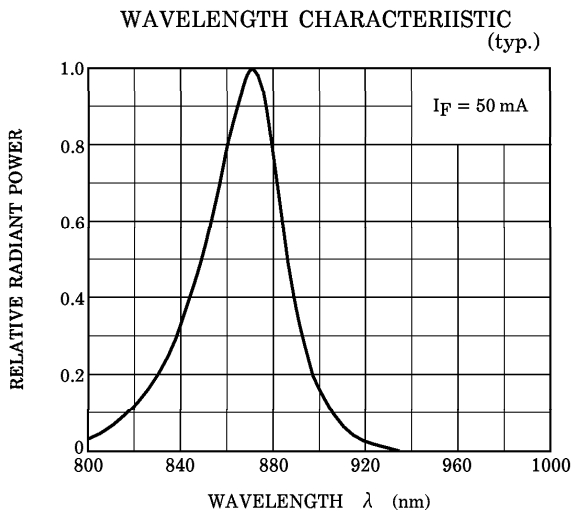
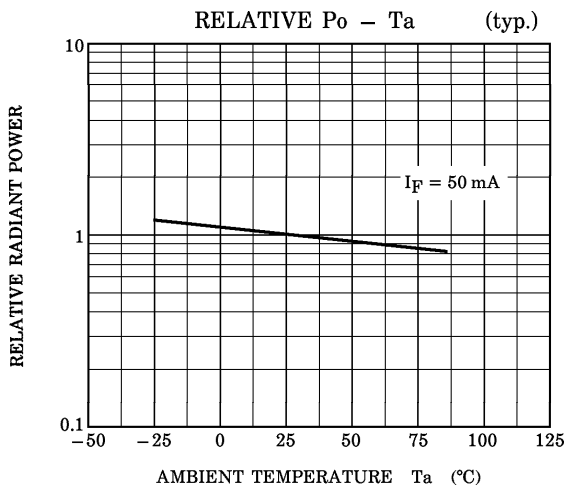
(Note 2) : Frequency when modulation light power decreases by 3dB from 1 MHz.

PRECAUTIONS

Please be careful of the followings.

1. Soldering must be performed under the lead stopper.
2. When forming the leads, bend each lead under the stopper without leaving forming stress to the body of the device. Soldering must be performed after the leads have been formed.
3. Radiant power falls over time due to the current which flows in the infrared LED.
When designing a circuit, take into account this change in radiant power over time.





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